ples of private and public hygiene. There is a better side to the picture; but still, it is highly important to take heed to the facts *as they are*, lest we should overlook means of improvement quite as necessary as any that have yet been discerned.

We are compelled to forego the consideration of Mr. Rumsey's second paper, on "Certain Departments of Medico-Sanitary Police and Medico-Legal Inquiry;" in which he conveys a plan for the establishment of four sanitary offices, statistical, supervisory, analytical, and medico-legal. His statement, however, therein, of the proper sphere and *animus* of the *sanitary reformer*, may form an appropriate conclusion to these remarks:—

> "His motto is 'Progress.' His means: impartial, scientific, and comprehensive inquiry; skilful compilation and truthful publication of facts in every district; unsparing exposure of abuses; systematic instruction of the people by qualified teachers; enlightened administration of wise laws.
>
> "His ends: the health and longevity of the people, aiding their moral and religious improvement, confirming the obligations of social order, strengthening the foundations of public liberty, and thus promoting the lasting peace and happiness of his country." H. H.

ART. XII.—*A Treatise on Fever: or Selections from a Course of Lectures on Fever.* Being part of a Course on the Theory and Practice of Medicine delivered by ROBERT D. LYONS, K. C. C., M. B. T. C. D., L. K. Q. C. P. I., L. R. C. S. I., M. R. I. A., Physician to Jervis-Street Hospital; formerly Clinical Assistant to the Meath Hospital; Professor of Practice of Medicine and Pathology in the School of Medicine of the Catholic University of Ireland; Foreign Secretary to the Pathological Society of Dublin; M. R. M. S. Lisbon. Late Pathologist-in-Chief to the British Army in the Crimea, etc. etc. Philadelphia: Blanchard & Lea, 1861. 8vo. pp. 362.

WHAT is fever? what is inflammation? what relations do they sustain to each other? are questions which have been before the profession from the days of Hippocrates to our own, and which have not yet been satisfactorily answered. How many attempts have been made to define the words, how many have tried in vain to tell others exactly what they mean by them! Different views have been given by different observers, each thinking that he was presenting the whole truth, when only one aspect of it had been offered. How characteristic this is of the human mind, when brought into contact with the vast and complicated works and doings of an Almighty Creator, to undertake giving a perfect description and explanation, by setting forth only such facts and appearances as can be embraced within its own narrow field of vision!

In the first chapter of the book before us, these same questions are presented, and the light of the most recent researches and discoveries is thrown upon them. Our author is well qualified, from personal observation, and from acquaintance with the doings and writings of German and French, as well as English pathologists, to discuss the subject which he has chosen for his treatise. He has practised in Ireland, that country of fever, he has practised "in the Crimea at the time of the extensive war in which such great countries," as England, France, and Russia, displayed all their resources. He spent some time at Lisbon, studying an epidemic of yellow fever. He is familiar with the histories of epidemics to be found in the works of writers of all periods of medical history. He shows an acquaintance with the discoveries and views of Louis, Rokitansky, Virchow, Schoenlein, as well as of English, Irish, and Scotch observers, who have studied the disease at home and in the numerous colonies and dependencies of the British empire. He first calls attention to his own country, Ireland, as "the chief *habitat* of typhus fever." He quotes from the returns of the census commissioners, that 222,027 persons had died of fever in Ireland within the ten years from 1841 to 1851. He mentions M. Scrive's calculation that the number of admissions for disease, in the French army hospitals of the Crimean war, amounted to 150,000, fevers and dysentery being the two principal diseases. And do we not find here a cogent reason for studying these maladies in the present situation of our own country?

In proceeding to inquire what fever is, Dr. Lyons adopts the definition of Cullen, as slightly modified by Dr. Christison, consisting in a brief enumeration of the chief phenomena attending the outset of a fever case.

> "After a preliminary stage of languor, weakness, and defective appetite; acceleration of the pulse, increased heat, great debility of the limbs, and disturbance of most of the functions, without primary local disease."

One objection to be taken to this definition, or one deficiency in it, is that the cause is not noticed. Since the days of Cullen, our knowledge of the etiology of fever is decidedly advanced. We now recognize it as the effect of a poison, and this truth should be made prominent for its bearing on our treatment. A poison has been admitted to the blood, has acted on the nervous system, and various phenomena are the consequence. To be sure, there is not one poison, nor is there one fever. By typhus fever we mean the effect of an animal poison, by yellow fever that of a vegetable or telluric poison.

It has always seemed to us, that Dr. Robert Williams did good service by publishing a work on poisons; typhus fever, plague, dysentery, smallpox, and other diseases, being thus presented. If a definition be a summary of phenomena suggestive of important points for the knowledge and treatment of a disease, its cause should not be excluded.

Remarking on the definition thus adopted, Dr. Lyons very properly tells the student—

> "You have here a very good outline of the more ordinary characteristics of fever in its first invasion of the system, but you have withal learned but little that is of an absolutely positive nature; for, as we shall subsequently more fully see, there is but one of the phenomena here indicated which can be regarded as essential and constant."

He then goes on to say—

> "If you ask me to name for you a character of fever which will stand the test of being invariable, constant, and so far *essential* to the pyrexial state, the most advanced researches of the most modern school of pathological inquirers can add nothing to the doctrine propounded by Galen, so long since as the second century of our era. This great observer asserted that the essence of fever consisted in a *calor præter naturam*, or an increase of the animal temperature of the system to a degree greater than that of the physiological standard. The metaphorical significance of the terms applied to the disease from a very early period in the Greek, Latin, and other languages, implies the almost universal recognition of the condition of increased temperature in fever. Now the researches of modern chemistry seem to show that these names are in reality less metaphorical than they would at first sight appear to be. While, furthermore, it is proved that the animal temperature, whether in the physiological state of

health, or in the pathological state of disease, is maintained by a true process of combustion, in no essential respect differing from that which takes place in any ordinary fire, or other agency consuming oxygen and generating artificial heat."

The thermometrical researches of modern observers are referred to, and cited to *prove* an increase of temperature, even when the patient complains of feeling cold. We must admit, then, that, in the present state of medical science, an increase of temperature is essential to that state of the body known as the febrile. But, the word fever, besides its appropriation to designate a state of the body, is also used as a name of diseases. We have yellow fever, we have typhoid fever, and though a febrile state is characteristic of these diseases, it is not essential to them. At certain stages or periods of these diseases, it is generally absent, and we must sometimes admit a patient to have had typhoid fever, though we have never recognized the febrile state, the increased temperature at any period of the disease. So, too, in inflammation, a febrile state is generally but not always found. The words lung fever, brain fever, show the connection in our minds between fever and inflammation. Broussais and others were unwilling to recognize fever apart from inflammation. Now, however, all admit that typhoid fever and yellow fever, frequently attended by inflammation, as they may be, consist in something very different. But what is the precise meaning of these two words? We were told at one time that heat, redness, pain, and swelling were the phenomena of inflammation. Mr. Bennett would give these up, and drop the word inflammation, and speak only of exudation. The profession is not ready to go with him. We must admit that we cannot tell exactly what we mean by inflammation. It may take place without fever, which is almost never an inseparable accompaniment at all stages of the processes. And, however frequently exudation may be found in the lungs, intestines, in the serous membranes of the bodies of those who have died with typhoid or bilious fever, we do not find appreciable alterations of the organs of all who fall victims to these diseases, although fever may have been a prominent symptom. We must use the words fever and inflammation. We cannot say exactly what we mean by them, and yet, too, we are learning more about them. Increased tissue change has some relation to these processes. We recognize that the source of the normal temperature is to be found in the chemical development of heat attendant on nutrient changes perpetually going on in the tissues. In lung fever, in typhoid fever, more heat is made at the expense of the body itself. Food is not taken, the stomach cannot digest it; at the same time, there is call for fuel. Eisenman tells us of pyretogen, of *fever stuff;* the blood is loaded with carbon and hydrogen derived from a disintegration of tissues, the lungs and the heart are working more actively to introduce and circulate the oxygen, and bring it in contact with the worn-out particles, and, thus, caloric is evolved. But what is the cause of this increased activity of heat-making organs? The student sometimes gets rid of old papers from his study, whose presence is an inconvenience, by burning them up. Are these materials of the body which are being gotten rid off in a similar way? A person is shut up in a room filled with exhalations from the bodies of several other persons, or he is exposed to emanations from a marsh, and presently we find the temperature of his body increased. A poison has gotten into his blood, processes analogous to those of fermentation are set up, we have a febrile movement. Sometimes one organ suffers particularly. A person is exposed to cold when the skin is active. There has been increased tissue change, and the skin is getting rid of worn-out particles, and by cold these processes are arrested. The blood overcharged with effete material is driven to the lungs, and we may have diseases known as lung fever, as catarrhal fever; or, a serous membrane may be the seat of the determination; we may have a pleurisy, a pericarditis. Here we have inflammation. A peculiar poison gets into the blood; after a while, a febrile movement is very apparent. There is a decided increase of temperature. The blood is determined to the skin; we recognize heat, redness, pain, swelling, congestion, exudation. An eruptive fever is declared, and the febrile movement subsides, the usual temperature of the body is restored, the circulation ceases to be more active. But, does suppuration take place, are there pustules of the skin and mucous membrane, we have what is called the secondary fever of variola, effete matter is in the blood again, and is being burnt up, or otherwise gotten rid of by excretion. In rheumatism, also, we have fever and we have inflammation as effects of a poison; and, at the same time, neither fever nor inflammation is essential to rheumatism. Now, a recognition of a poison as the cause of variola and of rheumatism is important for the pathology and therapeutics of those diseases; and, whilst we commend Dr. Lyons for dwelling on increased tissue change, and elevated temperature, and quickened circulation, in their relation to fevers, we do not think that he dwells enough on the etiology of the diseases he is describing, absolutely or comparatively. He thus concludes his discussion of the nature of inflammation and fever:—

> "Fever is of general or systemic origin; inflammation is essentially of local origin. Fever and inflammation are both characterized by increase of the animal temperature, increased metamorphosis of tissue, and increased circulation.
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> "In fever these conditions are produced generally and simultaneously throughout the system; in inflammation they are essentially local in their origin, and, if the inflammatory processes remain purely such, they may never even extend beyond the limits of the inflamed structures. In fever (purely such), the nutrient metamorphosis, though commonly attended with interstitial absorption, progresses in both tissues and organs without injury to their structure, and, it may be, without interference with their functions. In inflammation, on the other hand, local change is induced, often to the extent of complete disorganization and destruction of tissue, with the result of organs being spoiled."

This statement of the relations of fever to inflammation does not satisfy us. Let us distinguish between the different meanings of the word fever; let us take the word as applied to a disease. Typhoid pneumonia, rheumatic pericarditis—do not inflammation and fever meet in these terms? How very rare are idiopathic pericarditis, gastritis, and peritonitis! These diseases are almost unknown, except as produced by poisons which give rise to fevers. A rheumatic fever, a typhoid fever, a surgical fever, are attended by inflammation, when the poison in the blood is determined to the pericardium, to the lungs, to the intestines, to the peritoneum, and the tissue is unable to remove it. Sometimes, a hemorrhage, a diarrhœa, a profuse sweat, are the last phenomena of a fever; the tissues seem to have been able to remove the poison from the economy. A patient often gets well of fever without inflammation. Sometimes, congestion of the viscera is the only post-mortem phenomenon. In fatal cases of typhoid fever, softening, ulceration, exudation of intestinal glands are so frequently found that the disease was once called dothinenteritis. Both fevers and inflammations, then, are due to poisons affecting the blood and the nervous system, but these poisons do not always so interrupt the nutrition of organs and tissues as to give rise to the phenomena known as those of inflammation.

But we have said enough of this difficult subject, of what may well be called a "vexed question," and we leave off with the same confession of imperfect acquaintance, of deficient knowledge with which we began.

Let us now say a word of the classification of fevers proposed by our author. He makes three great types—primary, irritative, and eruptive fevers. Under the latter, he places variola, rubeola, scarlatina, miliaria. We might ask why erysipelas, erythema, and urticaria are excluded from this association. These last diseases are attended with fever, are due to a poison, are general diseases, the skin being the part to which the poison seems especially determined. Other skin diseases, as lichen, may be deemed suitable for the same list; and, thus, at every step in nosology, we find evidences that we do not yet know the nature of diseases, and are not able to perfect a natural classification.

Our author places as irritative fevers, gastric fever, gastro-intestinal, remittent, and hectic fever. But why should not this last be associated with surgical and puerperal fever? Has not pyæmia something to do with all of them? In "typhoid fever," have we not reason to believe that secondary fever is sometimes set up from effete matter of the intestinal abscesses getting into the blood? May we not profitably study typhoid fever at a certain stage in connection with variola, surgical fever, and puerperal fever?

Dr. Lyons divides primary fevers into three groups. In the first we have continued fevers, synocha, synochus, typhus, and typhoid. Must we not admit all these diseases to be from poisons? Do we not know typhus fever to arise from exhalations from living bodies? The names *jail* fever, *camp* fever, *ship* fever, show our belief of the origin of the disease in exposure to emanations from the skin and lungs of living men crowded together. Typhoid fever is not due to this poison; it arises in country villages, in isolated houses; it prevails amongst the rich as well as amongst the poor. We recognize these two diseases as distinct, not merely from symptoms and history, but also in their etiology. To be sure, we do not know what is the cause of typhoid fever. Is it a poison manufactured in drains and water-closets? Is it taken into the system by drinking water from wells into which sewerage has penetrated? Is it an *animal* poison, or can vegetable decomposition give rise to it? What have telluric emanations to do with it? Again, in the diseases known as typhus and typhoid fever, is there only one poison? What do we mean by the typhus state of various diseases? Is it not connected with the presence of effete matter of the body, being in the blood, and thus brought into contact with the nervous system? A poison first may interfere with the functions of the nervous centres presiding over circulation, secretion, excretion, as well as with other organs, but in time new poisons are generated, or, rather, retained in the system, secretion and excretion being suspended. May we not thus account for similar symptoms and conditions in various fevers, as typhus, typhoid, surgical fever, erysipelas, puerperal fever, diphtheria? But what is the cause of synocha and synochus? Fatigue will give rise to fever. If the nervous system be exhausted by muscular exercise, by intellectual effort, by moral emotion, we may have a fever not caused by poisons from without, but by poisons resulting from imperfect excretion. Besides, too, we probably have a good many telluric, vegetable, and animal poisons which singly, or in combination, give rise to various fevers. We cannot handle these poisons, we cannot analyze them; and Dr. Lyons seems to us wise in retaining the old terms synocha and synochus, and in trying to find out what was meant by them, in trying to give us more definite ideas about them. He tells us also about febricula and relapsing fever, but he does not say anything about the plague, the relations of which to typhus fever should be brought forward in every scientific treatise on fevers. What connection has this formidable epidemic with intermittent and remittent fevers? Does it proceed from an animal, a vegetable, a telluric poison, or from a combination of the three? Here we have one of the defects of the classification adopted by Dr. Lyons, etiology not being allowed its due influence. Thus, yellow fever is classed amongst remittent fevers, and is not distinguished from bilious fever; and the general characters of the three great groups of the primary, the irritative, and the eruptive fevers, given in the chapter on the classification of fevers, are not to us satisfactory. Thus, our author tells us—

> "That primary fevers are essentially characterized by the development of a general pyrexial state, independent of specific pathological lesion, and having no necessary connection with localized disease in any portion of the body, or in any organ or tissue. All organs, and perhaps all tissues, participate in the febrile action, when once it is established; but it cannot be said to originate in any one part more than in another, saving so far that the considerations already adduced show that the first link in the chain of morbid actions may be found to implicate the nervous system.
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> "The irritative fevers, on the other hand, owe their existence to lesion of a well-defined kind in particular parts of the system. They have a true anatomical seat, or origin, and are to be regarded as the constitutional expression of localized disease.
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> "While, therefore, the primary fevers are independent of all localized diseased processes, and are commonly to be met with unattended by pathological changes of any kind, the irritative fevers recognize no existence independent of local disease of some kind.
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> "The eruptive fevers are characterized by the absence of all specific lesions of the more important viscera, while the cutaneous surface is so frequently the seat of pathological processes in these fevers that, in the majority of instances, our diagnosis between the individual fevers of this group depends on the special character of the rash or eruption presented on the skin."

Now we must maintain that typhus and typhoid fever are characterized by lesions, in the same way, though not to the same degree, as are scarlet fever, measles, and smallpox. All of these diseases are general, constitutional. No one of them consists in the lesion of any one organ or tissue. Two hundred and eighty-seven pages of the first volume of M. Louis' work on typhoid fever are devoted to pathological anatomy. Whilst there is scarcely an organ or tissue of the body which may not be affected by the disease, the intestinal glands are almost always the seat of changes. In typhus fever the lungs are very often the seat of important lesions. In scarlet fever the skin, the throat, the kidneys, are especially the seat of changes. In measles the mucous membranes of the lungs and eyes are suffering parts. And in hectic fever, or surgical fever, or rheumatic fever, a poison, generated in the system itself, disturbs the innervation and circulation, gives rise to general symptoms, and, secondarily, to lesions of particular parts or organs. All these diseases are due to poisons; all these poisons acting on the blood and nervous matter provoke efforts of nature to expel them from the system, and the great emunctories of the economy, the skin, the liver, the lungs, the intestinal glandular system, suffer from an especial determination of the poison to one or more of them. We know of arsenic, of corrosive sublimate, of strychnia, of opium, that each is determined to certain parts or organs. The salivary glands free the economy of one poison, the kidneys of another. And we recognize the same truth in this case of the impalpable animal, vegetable, and telluric poisons. Opium and the typhus poison both act on the cerebral hemispheres; strychnia and the poison of hydrophobia are determined to the spinal marrow; but the words encephalitis and myelitis are not applicable in any of such cases. There is a suppurating wound; there are minute abscesses in pustules of smallpox; fever sets in, but it is not to be regarded simply as "the constitutional exponent of specific disease." This secondary fever is from a poison acting first on the blood and on the nervous system.

But we have perhaps said enough to show why we object to the classification of our author, and to set forth our own ideas of the propriety of arranging fevers as all arising from poisons, of most of which, to be sure, we know nothing beyond their effects on the human body.

In the fourth chapter of the book under review we find a good account of simple continued fevers. We like what our author says of bloodletting in synocha. He has been speaking of fever implying increased action in all parts of the system, and the production of a great quantity of effete material resulting from the increased metamorphosis of the tissues. He then goes on to say:—

> "Under these circumstances, the course of the blood surcharged with the effete materials produced by the consumption of the tissues in fevers, may be compared to a stream, which, impregnated with earthy particles, silt, and other impurities, deposits them in various points of its course, and then flows on pure and limpid. Such analogies as these, however, must not be pushed too far; the lungs eliminating carbon and hydrogen; the skin throwing off water, salts, ammonia, and other compounds; the kidneys carrying off urea, uric acid, chlorides, sulphur, phosphates and their allied bases, and the intestinal canal acting as the common-sewer of the system, play the part of so many strainers or purifiers. We must not forget, however, that in a highly complicated machine like the animal body, each part reacts upon all the others, and the blood itself, when rendered impure, will in its turn influence the nervous centres, which stimulate the vascular system and the other parts engaged in the febrile processes. It is under this view that venesection may be defended when employed with the object of lessening the amount of stimulant fluid, 'impure fluid,' which is reacting on the nervous centres, and thus adding fuel to the fire, and keeping up the cycle of pyrexial actions. We do not deny, then, that there are cases in which a bold and early venesection may have the effect of partially arresting the process of febrile actions, or of preventing them from spreading to a wider circle of parts. Mark, however, that in this aspect, bleeding answers but one purpose; it may control, but it cannot cure the fever. Febrile action, if continued only for one hour, produces effete material, as the burning of coal or wood produces ashes. The pathological or febrile ashes must be eliminated from the system; bleeding cannot in any conceivable way effect this object; it can only be accomplished by elimination through the pulmonary surface, the skin, the intestines, or the kidneys, acting singly or in combination."

Considerations like these may well be impressed on the mind of the student. We study the natural terminations of fever, lysis and crisis, to get indications of treatment. We find nature acting to get rid of poisons, sometimes gently and imperceptibly, and sometimes convalescence dates from some violent effort. Can we by emetics, cathartics, sudorifics, or bleeding, get rid of the poison when its first effects are noticed? Can we break up a fever? Dr. Jackson, of Boston, in his last letter to a young physician, has avowed his belief that an emetic will sometimes act to interrupt pyrexial action, and that its administration will sometimes be followed by prompt convalescence. He also calls attention to the fact that but seldom has the physician an opportunity of using this means. Fever begins so insidiously, its early symptoms are so uncertain, that we are seldom called to take charge of a case till the poison is thoroughly incorporated in the system. Dr. Lyons tells us—

> "There can be no doubt that a strong emetic of the potassio-tartrate of antimony, sulphate of zinc, ipecacuanha, or mustard, may give a powerful revulsion to the nervous system through the gastric filaments of the vagi, and it may be that in the minor febrile states it will be found possible to arrest the pyrexial action by such means."

"It will be in the recollection of almost every practical physician, that he has seen cases in which obstinate gastric irritation, and incapacity of retaining food or medicine have been directly traceable to the abuse of the emetic treatment of fevers."

So, too, in the use of purgatives. Some practitioners look to purgation as only next in importance to bleeding.

"The Hamiltonian method once took the place of the hydropathic system of the present day; the one insisted as strongly upon the all sufficiency of intestinal elimination as the other upon that through the skin. Cases will undoubtedly occur in which purgation is the most obvious as well as necessary therapeutic indication to be followed in the first instance; but no practitioner of any experience can have failed to meet with cases in which excessive purgation has been productive of the most injurious effects."

With regard to sudorifics and sweating as a means to free the system from poison, the language of Sydenham is quoted that only those sweats which are the result of coction or digestion of the materia morbifica are available for crisis.

"All practical physicians must be aware of the fact that sweating is not infrequently a symptom of most unfavourable augury in all kinds of fevers." "Sweating cannot be regarded as a curative process *per se*, and is to be regarded as a safe and reliable therapeutic and curative process only when it forms part of a general eliminative action in the system."

We have thus cited passages from our author to show how he looks upon the eliminative treatment of fever. He would appeal gently to the various emunctories, as, in each case there may be a special indication of the propriety of quickening the activity of one of these organs. But some of the fever poisons seem so directly determined to nervous centres of organic or animal life, that at all times one of the nicest questions in the treatment of fevers has been as to the use of stimulus. Leeches to the temples, cold lotions and showerings, are, to be sure, especially indicated in synocha. Our author agrees with Dr. Jackson in deprecating bleeding from the temporal artery. The ice cup applied on the shaven crown is called a most excellent remedy for severe cases. A proper discrimination is made between the cerebral symptoms of synocha and those of typhus. In these latter cases the poison weighs upon the nervous centres of secretion and excretion, the blood is thronged with effete matter which is to be gotten rid of only by stimulating the circulation and the emunctories. Though meningitis and encephalitis are simulated and threatened in synocha, the congestion of typhus is a very different matter, and must be very differently treated. The fact of typhus frequently proving fatal by cerebral complications in the better class of society, as constantly as by thoracic secondary lesions amongst the lower classes, is properly dwelt upon. That state of cerebral and nervous excitement resembling the condition of delirium tremens, is also noticed, as well as the delirium ferox, the high excitement, with violent muscular efforts, sometimes suddenly succeeded by profound prostration and collapse, or by coma, stertorous breathing, and relaxed sphincters. Now these cases are not to be treated as brain fevers. Dr. Lyons says:—

"Numerous dissections warrant me in stating that I have found sensible congestion of the brain and its membranes with increased serosity in the ventricles and subarachnoid spaces in cases which had presented no cerebral symptoms whatever during life; and again, that where there had been delirium ferox, and even in more than one instance, coma, no appreciable lesion could be detected in the brain or spinal cord after the patient's death. Many of the cerebral symptoms in typhus are explicable on the supposition that they are caused by a temporary congestion of the introcranial vessels; others, it is equally probable, are due to diminished nutrition of the brain, from its receiving an impure and inadequate supply of blood. A third class of cases, including those with comatose and paralytic symptoms, may be traced to the influence of the highly carbonized and otherwise deteriorated blood which is sent to the brain and spinal cord."

Now, all these considerations are eminently practical. And we are glad to see how much and how well our author discourses on treatment. The word self-limited has been applied to fevers, and with some truth; but certainly there are no diseases which so task the skill of the physician, or in which, by doing or letting alone at the proper moment, so much can be done to contribute to a favourable issue. Regimen and drugs are not more valuable in any diseases than in fevers; nor are powers of observation and reasoning, discretion and common sense, in medical attendants, of more use in any other class of cases. This very question of stimulus, when to give and what to give, is a difficult one. We believe the blood to be loaded with effete hydro-carbonaceous products. Shall we introduce these same elements in alcoholic and vinous drinks? The brain is already congested —shall we give opium? And we cannot reason out these problems. We are not so thoroughly conversant with all the processes of fever as to enable us to tell positively that such a drug in such an application will act favourably in a given case. We cannot yet establish a routine practice. Each author can only describe such varieties in the affection of different organs and tissues as have fallen under his notice, and say what in his hands has worked favourably. Dr. Lyons properly brings forward, as the result of his observation, "that cases in which the action of the system is uniform and well-balanced in all the organs and functions, may be regarded as comparatively safe; those, on the other hand, in which there is an excessive preponderance of one set of actions, must be viewed with suspicion, if not alarm. While all parts of the machine are working with uniform pressure, though at a high velocity, its safety is not immediately endangered." Here we have considerations to decide us in our treatment. We must not interfere to disturb regular and proportionate efforts of nature, but where the nervous system or the constitution is being overwhelmed, we may try to appeal to one or other of the emunctories. We may administer such articles as will rouse the nervous system or the constitution to throw off what otherwise would depress them beyond recovery.

The combination of tartar emetic and opium, brought forward by Dr. Graves, when the brain especially suffers, the exhibition of a mustard emetic when the lungs are especially oppressed, turpentine in typhus bronchitis, grain doses of calomel with opium, all these and other remedies are brought before the student with a judicious discussion of the circumstances under which they may be used. He is told that the physician at the bedside of a typhus patient "is in the position of a captain of a ship, who skilfully makes his vessel ride out the storm, not by any one specific mode of action, but by a combination of skill, intrepidity, and readiness, which enables him to see at once every possible source of danger, and to use every means at his command to obviate it."

We are glad to see a number of illustrative cases, of brief histories and post-mortem appearances. The author's observations have been in various localities, amidst various circumstances of climate, regimen, and race. He calls attention to *Comparative* Pathology. He remarks on the dissimilar types of febrile disease developed amongst the armies engaged in the Crimean war. Synocha, with high pyrexial action requiring bleeding, was prevalent amongst the Sardinians, whilst in the English, French, and Russian camps "putrid types of fever prevailed, in which stimulants were urgently called for." A sweating fever, with foul emanations from the skin, prevailed amongst the Turks, we are told, also.

> "I have myself formed the notion, but I in no way insist on it as a well grounded hypothesis, that the sthenic or synochal types of fever are in the present day, and, perhaps, have always been, most remarkably developed amongst the graminivorous and herbivorous races of men, while the putrid or typhus types of febrile action more readily develop themselves in the races amongst which animal food constitutes a large part of their ordinary aliment."

We have a good deal yet to learn about typhoid fever, its epidemic and climacteric variations, as well as those suggested in the paragraph which has just been cited. We welcome, therefore, what Dr. Lyons has to tell us of this disease in the Crimea. M. Felix Jacquot prepared a valuable treatise on the typhus of the eastern army, which was published after the author's death.

The Committee on Epidemics of the American Medical Association is collecting valuable materials for a scientific account of the fevers in this country. The first question is, what is typhoid poison, what is its origin? and, then, how do atmospherical climacteric peculiarities, how do peculiarities of occupation, regimen, and constitution modify the activity of the poison? Why in certain cases is it determined to the lungs, why in others to the brain? Why does yellow fever so generally affect the liver and the gastric mucous membrane? We find some information on all these points in the book before us.

But we have lingered quite long enough over its first chapters. Yellow fever is the subject of the ninth chapter, and of the two following. The disease was observed at Lisbon during the latter half of the year 1857, when an epidemic prevailed in that city.[1] These chapters are chiefly valuable for the history of that epidemic on which they are based. Dr. Lyons does not allude to Dr. La Roche's work, which should be regarded as the standard treatise on the disease, containing so full a summary of whatever had been observed or written on this subject to the date of its publication, with a great deal of original valuable matter. We do not find any reference to Dr. Clark's edition of Dr. Bartlett's work on fevers, and we are very much surprised that such thorough, well digested, and valuable treatises should not be recognized by the Professor of the Practice of Medicine and Pathology of the Roman Catholic University of Ireland.

We have already objected to yellow fever being classed amongst remittent fevers. The symptoms of the disease vary very much, making it even difficult of recognition, and requiring the adoption of forms or groups in a description. Dr. La Roche prefers the division adopted by Dr. Wilson, who speaks of an inflammatory and congestive form, each subdivided into three grades. The inflammatory and congestive varieties, the typhoid, the malignant, the cold form were proposed by Dr. Jackson, and adopted by Dr. Copeland. Dr. Lyons remarks very properly—

> "I can have no doubt that a great deal of the discrepancy of statement and conflict of opinion in the accounts we possess of the several epidemics of yellow fever occurring in various localities, has arisen from the different forms which the disease presents, being confounded in one common description, embracing the phenomena of all."

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[1] See No. of this Journal for April, 1861, p. 480.

The five forms under which the disease is described by our author are, the algid, the sthenic, the hemorrhagic, the purpuric, the typhus. It is a little curious that the first form of a "fever," of which disease increased temperature is considered by many as the one characteristic feature, should be the *algid* characterized by a diminution, sometimes of as much as two degrees, in the animal temperature. This phenomenon is, to be sure, in accordance with what is offered in the cold stage of intermittent and remittent fevers: and in the algid forms of those diseases, and in poisoning by arsenic and corrosive sublimate, a febrile movement is sometimes amongst the symptoms; and, sometimes, the skin is cold and clammy, the extremities are cold, the calorifacient processes being oppressed by the poison.

This algid form, during the Lisbon epidemic, occurred most frequently in persons of the very lowest classes, but was not limited to either sex or to any age; old and young alike being amongst its victims. The prostration of strength was early and extreme, and the hemorrhagic tendency present to the most marked degree in a very large proportion of cases. This we should expect from the connection observed between diminished temperature and loss of blood.

Dr. Lyons gives an interesting table of pulse-rate and temperature, in his remarks on the "sthenic" form, and thus shows that the highest pulse-rate and highest temperature did not correspond, and that there was no constant uniformity of relation between the two sets of phenomena. In sthenic cases there is a remarkable elevation of the temperature from the outset, an increase of three, four, or five degrees being common, and that of nearly seven having been observed. How great the difference between these two forms, the sthenic and the algid, as revealed in these accounts of the temperature of the bodies of patients classed under the two heads!

The cases under the hemorrhagic form are those which, next to what were classed under the algid, present the most "characteristic, appalling, and impressive features of the disease." Our author dwells on "the special and highly characteristic physiognomy" of yellow fever, the salient features of which are readily recognizable and taken in by the practised eye at a glance; and he goes on to say:—

> "I must avow, after a very extensive experience of the worst forms of epidemic disease at home and in foreign countries, and at the seat of war, that I have seen few assemblages of symptoms of a more striking, and, indeed, horrifying, character than those often presented in yellow fever cases, nor any in which more impressive feelings are called forth in the reflecting mind."

In a single case, there was hemorrhage from the eyelids, nose, gums, tongue, stomach, intestines, and blistered surfaces.

> "The constantly fatal character of this form of the fever is pointed out, as well as the fact that death seems to take place in many instances directly as the result of the hemorrhages, and generally within from twenty-four to thirty-six hours after they have set in."

Under the purpuric form, cases are designated in which the pyrexial state was well marked in connection with spots and patches of purpura. These were frequent in algid cases. One case is referred to in which the temperature was above the normal standard when the pulse had fallen to fifty-two, and the patches were precisely similar to those so often seen in the epidemic purpura hæmorrhagica of Ireland.

In only a few cases were typhus phenomena observed. These were presented "in two orders of combination." In one they appeared as the primary and essential characteristics from an early period of the febrile invasion, such cases resembling those of typhoid pneumonia, with jaundice. In other cases the patient passed through the sthenic or hemorrhagic forms, which were supplanted by the typhus. There was an increase of temperature in these cases to an extent of four or five degrees; they proved fatal, and no follicular lesion was detected in any of them after careful examination.

In reference to Dr. Clark's views of the connection of cerebral symptoms and black vomit with congestion and imperfect action of the kidneys, we have looked with interest at what our author has to say on the renal function.

> "Almost complete suppression was observed in certain cases. In other instances, and this not unfrequently, the urine has been abundant, normal in specific gravity and reaction, at times high-coloured, of a rich straw or amber colour, at times highly loaded with lithates, and presenting the brick-dust sediment with more or less colouring matter in different cases. Under other conditions, the urine is found coagulable by heat and nitric acid, and it is occasionally brownish-red, smoke-coloured, or variously tinged, from more or less admixture of blood elements. No deficiency of any of the normal constituents of the urine was observed by me in any single instance, where there was not a total or partial suppression of this secretion, which seems to stand in very intelligible relation with the generally depressed condition of the vital powers and the stagnation of the circulation more especially, and was only one of several similar states of suspended action in the system. In a few instances, albumen was found in the urine in connection with this depressed condition of the circulation,
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> "On referring to the results of the post-mortem examinations in yellow fever cases, it will be found that congestion of the kidneys, in common with most other internal organs, was sufficiently often observed."

A little further on, our author speaks of urine with high specific gravity and with more or less abundant deposits of variously coloured lithates, as constantly attending the well-marked pyrexia of the sthenic cases, and of the same peculiarities being found in cases classed as hemorrhagic. The excretion of colouring matter having the usual biliary reaction was often observed in connection with pyrexial and apyrexial states. Parotitis, an efflorescent rash, bloody furuncles, are among the symptoms of yellow fever at which we look when we ask to what parts or glands is the poison especially determined.

> "The state of the liver was the most remarkable, the most constant, and, to my mind, the most inexplicable condition presented in the post-mortem examination of fatal yellow fever cases. I believe that it may be affirmed that some departure from the normal state of the organ was an absolutely constant condition in all cases which proved fatal. It was not only so with regard to the cases examined by myself, but the concurrent testimony of all my learned *confrères* in Lisbon pointed to the same result. The colour most frequently presented was that of a rich fawn yellow, or buff, various shades being observable in different cases."

M. Louis tells us also of the epidemic at Gibraltar—

> "That the most remarkable lesion of the liver was the alteration of its colour, which was more or less exactly the same in all the cases, and through the whole extent of the organ. This alteration consisted in a discoloration, the liver being sometimes of the colour of fresh butter, sometimes of a straw colour, sometimes of the colour of coffee and milk, sometimes of a yellowish gum colour, or a mustard colour, or finally, sometimes an orange inpistachie colour." "In the present state of science it seems to me impossible to determine the nature of this alteration."

Dr. Lyons made microscopic examinations of the hepatic tissue, and the hepatic cells were found filled with globular oily and fatty matter. The natural appearance of the cell was completely altered, its outlines obscured and its nucleus rendered invisible. Dr. Alonzo Clark, of New York, in 1852 found on microscopical examination of a yellow fever liver "a fatty state of all the secreting tube-cells, and such an abundance of free oil-globules of large and small size, as to cover and obscure every thin section which was made of the liver," and asked the question, "is not the change so constantly observed in the livers of those dying of fatty fever an acute fatty degeneration? Dr. Lyons has also inquired into the specific gravity of the liver, and gives a table of twenty-four cases from which there is shown a general correspondence between fatty degeneration and low specific gravity, and that the specific gravity is a more accurate measure of the fatty change than that furnished by the colour of the hepatic substance. In ten cases an attempt was made to determine the absolute quantity of fatty matter by maceration of known quantities in sulphuric ether. Proof was thus obtained that with the yellow, or buff-coloured, or even the chocolate-coloured state of the hepatic substance, there was found a considerable, and in some instances a very marked increase of the fatty elements.

In the eleventh and last chapter, marked as supplementary, there is given a summary of the chief climatological and other elements determined in connection with the Lisbon epidemic of 1857, extracted from an official report to the President of the General Board of Health at Lisbon. After careful inquiry in all directions no evidence was found to warrant the conclusion that the "*importation* theory was even moderately well founded," though a belief in it was widespread and general, and not confined to any class of the community.

> "All parts of the city largely attacked by the epidemic presented in common certain conditions of insalubrity, which may be classed as follows: A. Defective water supply. B. Total absence of, or extremely deficient sewerage. C. Total absence or incompleteness of house-drains, privies, and a consequently unclean state of the streets. D. Badly-constructed dwellings, with deficiency of light and air, and want of thorough ventilation. E. Absence or defective condition of tertiary and secondary sewers."

Thus we have additional proof of the great importance of effective sewerage and of an abundant supply of water to the health of cities. There was no proof of contagion and no general belief in it. From 20 to 40,000 of the inhabitants ran away from the foci of infection, but

> "Devoted attention to the sick was the universal rule with all classes of society; and even on the friendless and the stranger I have seen all the care and anxious solicitude bestowed that could be lavished on the nearest and the dearest friend or relation."
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> "An excellent tranquillizing effect was produced on the public mind by the truthful and highly creditable manner in which the daily bulletins, giving a statement of the progress of the epidemic, were published by the authorities."

The meteorological conditions at the outbreak and during the prevalence of the epidemic are discussed at some length, and we are told that—

> "So far as the available data can be relied on, there is no evidence of any very unusual atmospheric disturbances having preceded the outbreak of the epidemic; nor again, during the months in which the epidemic reigned, is there to be recognized any very extraordinary departure from the meteorological conditions of the same months in former years."
>
> "The dew-point for November and December was remarkably high, 54.5 and 50 as compared with 49.2 and 46.15, the highest respectively in any of the preceding years. There is, however, no absolute relation between high dew-point and the epidemic outbreak in the preceding months."

We have thus endeavoured to give our readers an idea of the contents of the volume under review, and they will probably agree with us that it constitutes a valuable addition to our medical literature—that it is a book which is wanted, notwithstanding that so many treatises and histories of the subjects of the work have already been published. It is not an elaborate scientific treatise, gotten up and written with the skill and carefulness characteristic of the books prepared by Dr. Bartlett and Dr. La Roche. It is, however, a very interesting and a very readable book. It conveys a great deal of valuable information, and supplies a want which has been felt of a succinct and satisfactory statement of the application of the views and discoveries of recent writers on physiology and pathology to the various fevers, in the treatment of which, as well as in prophylaxis, the practising physician feels so much the want of more light and of greater certainty.

G. C. S.

ART. XIII.—*A Manual of Human Microscopic Anatomy.* By A. KÖLLIKER, Prof. of Anat. and Physiol. in the Univ. of Würzburg. With 249 illustrations. London, J. W. Parker & Son, 1860.

THE name of Professor Kölliker has long been identified with microscopical anatomy, and most of our readers are familiar with the English translation of the first German edition, issued in 1853-4, under the auspices of the *old* Sydenham Society, and republished in this country in 1854. Since that period two German editions have appeared; one in 1855, and one in 1859. The present English version, we are told, "is, in the main, a condensed version of the second German edition (of 1855). But every material addition that has been made to human microscopical anatomy, up to the present date, will be found incorporated in it. The book is, therefore, brought well up to the third German edition—that of 1859."

The mere issue of a new edition of a work so well known would require no more than a bare notice at our hands, were it not that it contains a frank acknowledgment of the accuracy of certain new histological facts of the highest doctrinal importance at the present time.

Those who have been interested in the gradual development of the cell-doctrine, and who have watched the complete revolution it has recently undergone in the hands of such men as Remak, Reichert, and above all of Virchow, will remember well that the general idea underlying the histogenetic doctrines of the earlier editions of Kölliker's Manual, was an acknowledgment of Schwann's theory of free-cell-formation. In fact, though an independent observer of the highest order, a careful perusal of these earlier editions shows that Kölliker was in many respects a disciple of Schwann, in his doctrinal ideas. Like Schwann, he saw in the fluid or semi-solid intercellular material the cyto-blastema out of whose plastic substance the cells had been produced; and while stubborn facts compelled him to admit that "botany knows no free cell development," and that "free cell development is in man and the higher animals far less common than has been hitherto assumed," he yet believed Schwann's theory to be applicable to "the development of the chyle and lymph corpuscles, of the cells of certain glandular secretions (spermatic cells, ova), and gland-like organs (closed follicles of the intestine, lymph glands, splenic corpuscles and pulp, thymus); lastly, of the cellular elements of the pregnant uterus,